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Non Life Insurance in India: An Empirical Analysis

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Abstract:
The IRDA report said the growth in non-life insurance industry premium is expected to outpace the growth of life insurance industry primarily due to huge under-penetration. Increasing catastrophe, manmade disasters also incline to cause more demand for non life insurance. Growing demand for motor insurance products due to expected rise in per capita, disposable income levels will also lead to faster growth in non-life industry premium. The report suggested that industry players have to put spotlight on raising the productivity of costs incurred towards employee training and development. Insurance companies will have to establish effective distribution channels and undertake marketing activities to improve awareness and education level, the report said (Economic Times) In this paper we are regressing Non life insurance indicators on various macroeconomic variables as such as inflation, M3/GDP, POPULATION and GDP. Insurance penetration, density, absolute amount of premium is used as insurance indicators. Insurance penetration *is calculated as the ratio/the percentage of total insurance premiums (in US dollars) to gross domestic product. Insurance density is per capita insurance. Inflation, M3/GDP, POPULATION and GDP are explanatory variables.*

Keywords: *Density, Macro Economic Factors, Non Life Insurance Penetration*

1. Introduction

The Indian market has undergone significant structural change and growth since 1999-2000, as a result of policy reforms allowing private companies into the insurance market. State-owned insurers have remained, and maintain a dominant share of the non-life market, but operate as private commercial entities. The share of the market carried by foreign companies was capped to 49% in 2013 (Nicola R, 2011). As of march 2012, there are 24 non-life insurance
Companies in India, which comprise:

- 6 public insurance companies
- 16 private insurers

In this paper we are regressing Non life insurance indicators on various macroeconomic variables as such as inflation, M3/GDP, POPULATION and GDP. Insurance penetration, density, absolute amount of premium is used as insurance indicators. Insurance penetration is calculated as the ratio/the percentage of total insurance premiums (in US dollars) to gross domestic product. Insurance density is per capita insurance. Inflation, M3/GDP, POPULATION and GDP are explanatory variables. M3/GDP proxies for financial development, expected to have positive relationship. Inflation can curtail the purchasing power of an individual, thereby tends to have negative relationship. GDP expected to have positive relationship which is obvious approved by developed countries having high degree of insurance penetration. Population also tends to positively associated with demand for non life insurance due to more fair market presence. The following figure shows out that non life

insurance penetration is hovering around 0.56 to 0.78. The density has increased from 2.51 US dollars to 10.52. By same way, absolute amount of premium rise from 2.67 billion dollar to 13.14 billion dollars. Growth in non life insurance premium varies between 5.6 % to 17 %, which decline to 5.6 % in 2007 recession indicating dependence towards GDP.

Table No. 1 Non LIFE Insurance indicators from 2001 to 2012

Year	Pentrayion	Density $	Prem $ billion	Growth in Real Perm
2001	0.56	2.51	2.67	16.9
2002	0.62	2.92	3.15	14.69
2003	0.63	3.44	3.78	9.78
2004	0.62	3.9	4.34	8.26
2005	0.63	4.48	5.08	10.72
2006	0.66	5.21	6	13.63
2007	0.65	6.49	7.57	5.6
2008	0.63	6.17	7.3	1.63
2009	0.67	6.89	8.27	5.4
2010	0.68	8.7	10.58	9.75
2011	0.73	10.12	12.47	13.93
2012	0.78	10.52	13.14	10.18

There are other variables such as urbanization, education level, Hofstede four cultural variables, natural catastrophe manmade disasters, political risk and legal system

2. Literature Review

Feyen et al. (2011) and USAID (2006) explain that, rising levels of per capita income are associated with an increased affordability of insurance products as the growing middle-class population acquire greater disposable incomes (the direct effect), but also with a more conducive environment for insurance (an indirect effect), including rising levels of education, financial literacy and risk awareness, a higher priority on risk management, deepening client markets (e.g. growing financial sector, increasing markets for consumer durables, property and business ownership and greater investment in fixed capital), and more stable governance regimes.

Browne et al (2000) study 22 OECD countries from 1987 through 1993 and focus on the premium density of two lines of insurance: motor vehicle (usually purchased by households) and general liability (normally bought by businesses). Panel data analysis demonstrates that income (GDP per capita); wealth, foreign firms' market share, and the form of legal system (civil law or common law) are significant factors to explain the purchase of the two types of insurance. Per capita income has a much greater impact on motor insurance than on general liability.

Park et al (2011) applied several regression methods to an unbalanced international panel data comprising 82 countries observed from 1999 to 2008. The dependent variable was the logarithm of penetration, the fraction of GDP devoted to non-life insurance. Empirical findings for the most part conformed to our theoretical predictions. GDP per capita, urbanization, education, a measure of market concentration, and a principal component summarizing twelve political risk scores, all proved to be highly significant in affecting non-life insurance sales.

While Christian and Buddhist values do not appear to have any impact, the development of insurance markets is profoundly negatively affected by Islamic beliefs. Among the Hofstede cultural variables, Power Distance, Individualism, and Uncertainty Avoidance prove to be highly significant. Permanent income has positive impact on demand for property liability insurance as per the studies of Outreville (1980). Inflation rate and demand for p/ l insurance are positively related as per Feyen et al. (2011).

Park and Lemaire (2011) found positive impact of urbanization with some exceptions. Market concentration and political risk has negative impact as suggested by Feyen et al. (2011); Park and Lemaire (2011). Legal environment has positive impact on demand for non life insurance as indicated by Browne et al. (2000); Esho et al. (2004); Nakata and Sawada (2007); Feyen et al. Sherden (1984) expects urban dwellers to perceive a higher risk of car accidents and thefts. Therefore we expect positive relationship of urbanization with demand for non life insurance.

3. Research Methodology

3.1 Empirical Investigation

The following four models have been developed to provide a more diverse result. The purpose of setting up of these models is that we are regressing non life insurance indicators on various macroeconomic variables as such as inflation, M3/GDP, POPULATION and GDP.

We have developed 4 models:

1. $PEN = a + a_1POP + a_2GDP + a_3M3/GDP + a_4INF$
2. $DEN = a + a_1POP + a_2GDP + a_3M3/GDP + a_4INF$
3. $PREM = a + a_1POP + a_2GDP + a_3M3/GDP + a_4INF$
4. $RPG = a + a_1POP + a_2GDP + a_3M3/GDP + a_4INF$

Where PEN is Non Life Insurance Penetration, POP is POPULATION IN MILLION, GDP is GDP IN BILLION $, M3/GDP is ratio of broad money to GDP, INF is Annual Inflation rate, Den is Non life insurance density, PREM is absolute amount of PREMIUM , and RPG is GROWTH IN REAL PERM.

Model 1

In MODEL 1 Insurance penetration is the dependent variable. Adjusted R SQUARE of 82% tells us that the model is quite fit. Moreover Significance F also suggests that variables do affect the dependent variable. Population has insignificant impact on insurance penetration. GDP has positive and significant impact. Other variable does not have significant impact on the penetration

Model 2

Model 2 is also quiet well fit as indicated by adjusted R square of 99%.GDP have positive and significant impact on the insurance density which is expected. M3/GDP has also positive impact which is significant at 5% level. Interestingly, Population has negative impact on non life insurance density which is literally understood by its formula. But density has increased quite substantially, and there has been rise in the population not having reach of insurance products.

Model 3

High level of adjusted R square indicates the good fitness of model. GDP and M3/GDP has positive and significant impact on absolute amount of premium, whereas population has significant and negative impact on absolute premium value.

Model 4 is not quite well fit, but population and inflation is negatively related with real growth of insurance and GDP is positively related with real growth of insurance.

Table No.2 OLS Regression Results

Model 1	Coefficients	t Stat	P-value
Population in Million	-0.00039	-1.07256	0.297637
Inflation	-0.00203	-0.70404	0.490417
M3/ GDP	0.003784	1.246813	0.228447
GDP in Billion $	0.000155	3.206568	0.004891
Adjusted R Square	0.82	Significance F	0.00

MODEL 2	**Coefficients**	**t Stat**	**P-value**
Population in Million	-0.00868	-3.32155	0.003796
GDP in Billion $	0.006895	19.79141	1.15E-13
Inflation	-0.02349	-1.13031	0.273184
M3/ GDP	0.049337	2.259333	0.036504
Adjusted R Square	0.99	Significance F	0.00
MODEL 3	**Coefficients**	**t Stat**	**P-value**
Population in Million	-0.01359	-3.82159	0.00125
GDP in Billion $	0.008931	18.84902	2.67E-13
Inflation	-0.02887	-1.02128	0.320654
M3/ GDP	0.0906	3.050442	0.006886
Adjusted R Square	0.99	Significance F	0.00
MODEL 4	**Coefficients**	**t Stat**	**P-value**
Population in Million	-0.11425	-1.8576	0.080635
GDP in Billion $	-1.3119	-2.304	0.034114
Inflation	0.493279	1.03462	0.315341
M3/ GDP	0.018964	2.097732	0.051184
Adjusted R Square	0.1	Significance F	0.22

4. Conclusion and Policy Implication

GDP have positive and significant impact on the insurance density which is expected because greater income makes insurance affordable and also demands more for asset protection through insurance. M3/GDP has also positive impact which is significant at 5% level. Financial development and deepening can provide facilities to have positive atmosphere towards insurance. Interestingly, Population has negative impact on non life insurance indicators. But density has increased quite substantially, and there has been rise in the population not having reach of insurance products. Majority of private companies does not have reach to various districts. The policy implication of the paper is as follows:

1. Non life insurance is linked with economic disturbances as suggested by significant effect of GDP on the insurance indicators
2. There is a need to increase the district level reach of insurance product especially by private companies.
3. There is a need to focus on micro insurance.
4. Financial development and deepening should be fasten in order to improve non life insurance sectors
5. Technical efficiency shall be improved with the present non life insurance company's framework.
6. Inflation curtails the demand for non life insurance. There is a need for diversified special products which may account for inflation.
7. India is in the stage of emerging market with most of the macro economic variables conducive to the growth of non life insurance sector. We need to build framework to catch on the opportunity i.e. recent increases in the cap for foreign players in this sector, we need more such decisions.

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